

Calibration Guide, Board #100 & Higher, June 2000, GeoGauge #H-4140 (Stiffness/Modulus)

To re-calibrate, do as follows:

1. Turn off the GeoGauge.
2. Clean the ring foot and seal at the bottom of the GeoGauge of any soil. Clean out the hex hole of the three set screws at the bottom of the ring foot. Clean the area around the circumference of the screws thread area. A needle or sharp pointed nail is good for this.
3. Place a clean sheet of fine grit abrasive sheet on a flat steel surface and place the GeoGauge's ring foot on the abrasive. Using the handle, twist or turn the GeoGauge about 2-3 turns to remove any protruding nicks or scratches on the ring foot surface.
4. Remove the three setscrews with a 5/32 hex key wrench. Again, clean the ring foot. Make sure no soil particles are present in the internal threads of the ring foot.

<p>WARNING: Do not remove or loosen the center hex head screw securing the ring foot to sensors. Damage can occur and will void warranty.</p>
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5. Place the calibration platen assembly on a sturdy table with strong legs. Place the calibration platen above or as close as possible above a leg to avoid the weak area of the table. If in doubt, use the floor, preferably concrete floor.
6. Clean off any dust or soil particles from the platen. Platen must be clean. Positive contact between the ring foot and platen is important for accurate calibrations.
7. Place the GeoGauge on the center of the platen over the shoulder, lining up the screw holes.
8. Screw in the three screws (5/6-18 x 1-1/4 long) with its flat washers from below the round platen. Insert part way in before inserting the others. Then hand-tighten all three evenly.
9. Using the torque wrench (supplied), tighten to 120 inch pounds (14.1 Nm). Tighten each incrementally and evenly.
10. Remove the top display panel via four captive Phillips head screws at the metal corners.
11. Ascertain that the board # is 100 or higher. A number is written on a corner of the board.
12. As a pre-caution, remove any static or electrical charge you may have on yourself by touching an earth grounded source such as a un-painted screw at an electrical outlet cover or light switch cover or even the metal chassis at the rear of a plugged-in computer CPU.
13. Carefully lift the display panel straight up and away from the GeoGauge body.
14. Turn display panel sideways exposing the two toggle switches. The switch number 1 is the reset switch. The switch number 2 is for calibration.
15. Continue to hold the panel in such a way the electronic circuit board is not touching anything when you flip or move a toggle switch.
16. Flip the reset toggle switch number 1 to "ON".

17. Continue to hold the panel, turn on the unit by pressing the “ON” button. The display should momentarily show ‘reset’. After a few seconds the displays should change and show ‘SI’ or ‘EG’ and ‘0.00’. With unit still “ON”, flip the reset toggle switch number 1 back to off.
18. Turn off the unit by pushing the “OFF” button.
19. Still holding the display panel, flip the calibration toggle switch number 2 to “ON”.
20. Turn on the unit by pressing the “ON” button. The display should show ‘cal’ and then the permanent default calibration factor number. Leave the unit on and cal switch to “ON”.
21. Carefully re-insert the front display panel into the GeoGauge body. Screw back in each of the four corners captive screws snug, not tight.
22. Five calibration measurements will be needed. The calibration factor number to be used will be the average of the five. Use a watch or clock, to record when 90 seconds, plus or minus 5 seconds has elapsed between pressing of the “MEAS” button for each calibration measure.
23. Not touching the GeoGauge or platen except the indicated buttons, gently press the “MEAS” button to begin the calibration measure #1. At the end of the calibration measure, record the calibration factor as displayed on the panel. Press the saved button to save the value.
24. At 90 seconds from the previous press of the “MEAS” button, press the “MEAS” button again to begin the calibration measure #2. At the end of the calibration measure, record the calibration factor as displayed on the panel. Press the saved button to save the value.
25. Repeat each calibration measurements at 90 seconds apart for a total five times. More is not necessary and will not improve the accuracy.
26. Save and record the fifth and last calibration measurement. Turn off the unit.
27. Remove the top display panel from the body, and flip the calibration toggle switch to “OFF”.
28. Reinsert the top display panel back onto the body and tighten the four captive Phillips head screws at the metal corners snug.
29. Turn on the unit, the last saved calibration factor will be the temporary calibration factor until a new programmed EPROM, with the average calibration factor burned in, is inserted.
30. Remove the GeoGauge from the calibration platen assembly and re-insert the three setscrews into the ring foot using a “removable-type liquid locknut” or equivalent to secure the screws. The top of the setscrews should be below the surface of the ring foot by about 1mm (1/32”).

To reinsert an EPROM, follow instructions from the EPROM insertion guide.

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To “*Temporary*” re-calibrate, do as follows:

1. Follow procedures #1 through #21 of the Calibration Guide, Board #100 & Higher, June 2000.
2. Not touching the GeoGauge or platen except the indicated buttons, gently press the “MEAS” button to begin the calibration measure #1. At the end of the calibration measure, record the calibration factor as displayed on the panel. Press the saved button to save the value.
3. At 90 seconds from the previous press of the “MEAS” button, press the “MEAS” button again to begin the calibration measure #2. At the end of the calibration measure, record the calibration factor as displayed on the panel. Press the saved button to save the value. This “temporary” calibration factor saved generally comes closest to the average calibration factor used for “permanent” calibration factor burned into an EPROM. This “temporary” calibration factor is now used for each subsequent measurement until again changed or a new EPROM is inserted. **The “temporary” calibration factor is temporary in the sense that flipping the reset toggle switch can easily erase it. The calibration factor will then revert back to the one originally burned into the EPROM.**
4. Turn off GeoGauge.
5. Follow procedures #27 through #30.